BAWSCA
Bay Area Water Supply & Conservation Agency

November 21, 2005

Mr. Gary Bardini, P.E., Chief, Hydrology Branch
Division of Flood Management
Department of Water Resources
P.O. Box 219000
Sacramento, CA 94236-0001

Subject: "The Potential Economic Benefit of Restoring Hetch Hetchy Valley"

Dear Mr. Bardini:

The Bay Area Water Supply & Conservation Agency ("Agency") represents the interests of the 28 cities, water districts and other institutions in Alameda, San Mateo and Santa Clara counties that purchase water on a wholesale basis from San Francisco to supply a population of approximately 1.7 million residents, together with the industrial and commercial base for much of the Bay Area's economy.

We previously submitted a statement of the Agency's position on the proposal to drain Hetch Hetchy Reservoir. At the heart of the Agency's position is the principle that any decision to drain Hetch Hetchy Reservoir should be based on sound, objective information.

The purpose of this letter is to provide the Department of Water Resources and the Department of Parks and Recreation with our observations about the May 2004 study entitled "The Potential Economic Benefit of Restoring Hetch Hetchy Valley," prepared by Jessica Rider, which the DWR's website indicates is the only document currently in the record that attempts to estimate the economic benefits of removing O'Shaughnessy Dam.

The study is well organized and very well written, particularly for a graduate student at the Master's level in a field other than economics. However, it is technically flawed and substantially overstates the economic benefits of removing O'Shaughnessy Dam. It is clearly an advocacy document, not an objective academic study. As its cover discloses, it was prepared for Environmental Defense, the chief proponent of draining Hetch Hetchy Valley. The

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recommendations in the report are intended to assist Environmental Defense in using the techniques of economic analysis to advance its policy agenda. Finally, the author's bias against San Francisco, and the Congressional authorization for its use of Hetch Hetchy to supply water to the Bay Area, is evident.

This letter will first address the study's discussion of values related to use of the Valley's floor, in light of recent trends in recreation which the study ignores. It will then turn to the study's effort to postulate an even larger "non-use" value and will offer some suggestions about how the State might consider conducting its own study of this topic, if it decides to commission one. Finally, it will correct some factual errors about the history of the federal government's involvement in the Hetch Hetchy Project that reveal both a bias against the project and a less-than-thorough research effort.

1. THE STUDY'S ESTIMATES OF "USE VALUE" ARE OVERSTATED

The study presents a range of benefits (from $14 million to $35 million per year) projected to result from the use of the Valley after the dam has been removed. Several methodological problems undermine these estimates but the most serious, and influential, is the study's uncritical reliance on unsubstantiated, and outdated, assumptions about how many people would actually visit the Reservoir site if it were drained.

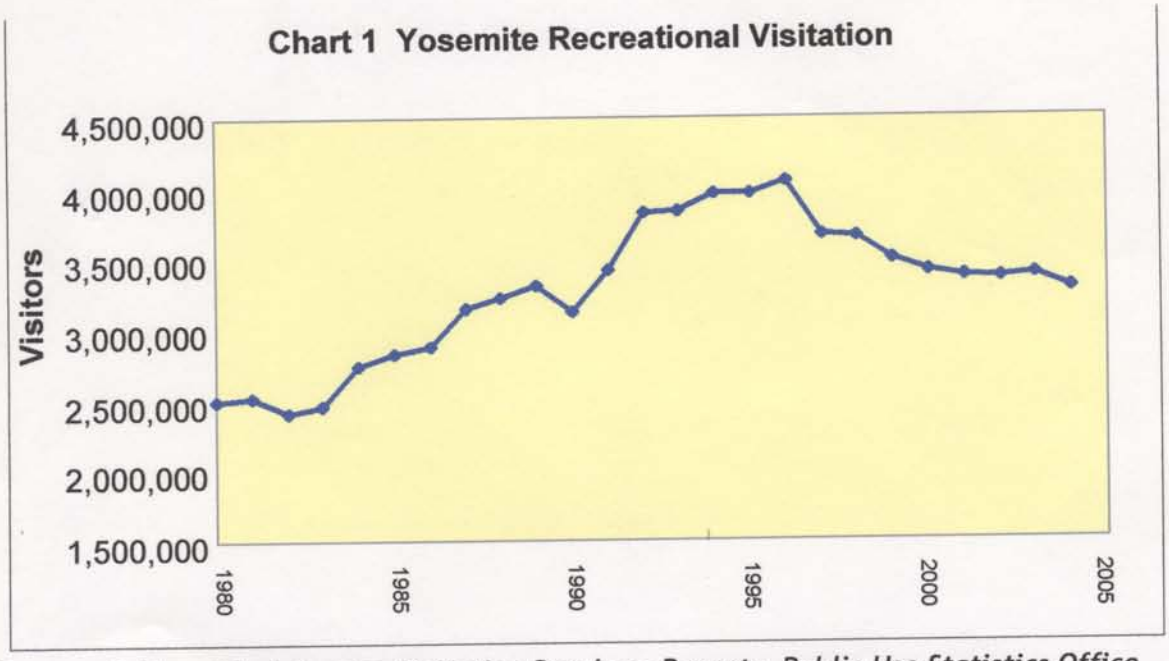
A. The Study Overestimates the Number of Visitors to a Drained Reservoir Site.

The $14 million to $35 million estimate is based solely on the assumptions about potential visitors (ranging from 200,000 to 500,000 annually) contained in a report prepared in 1988 by the California Assembly Office of Research. Those numbers were pure speculation in 1988, unsupported by any empirical data or analysis. Current visitation data and information about recreation preferences show that these 1988 estimates substantially overstated actual visitation patterns.

The AOR report was written at a time when annual visitation to Yosemite National Park was rapidly increasing. The AOR report put the rate of increase at four percent a year, noting that

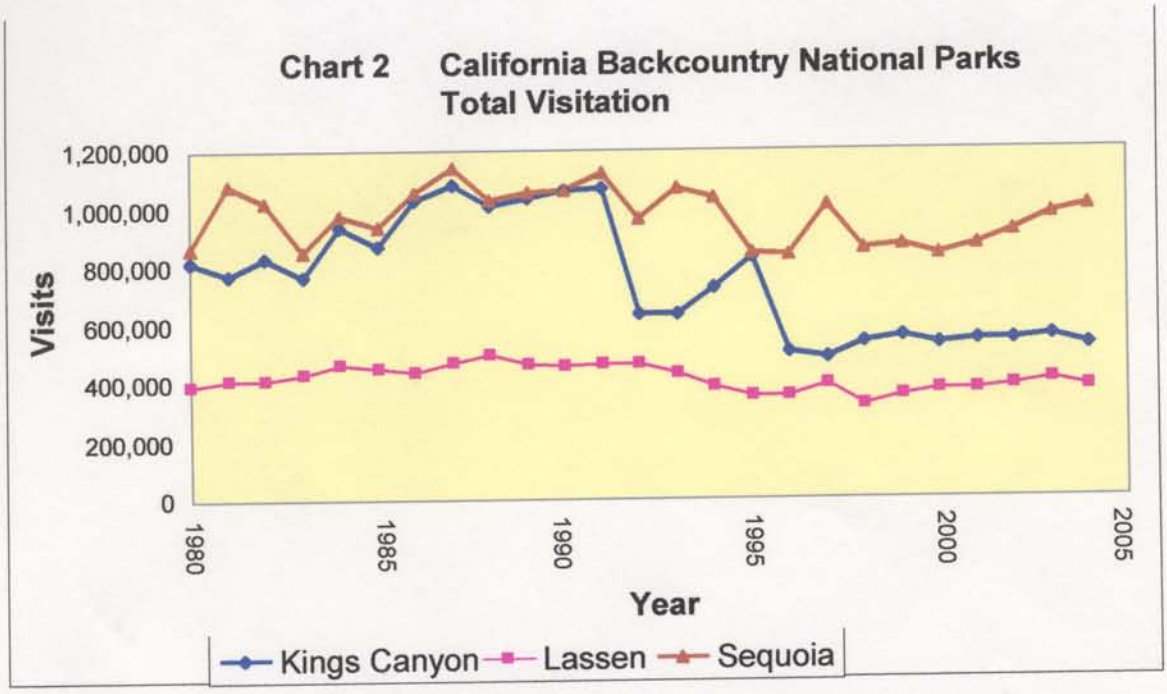
this rate was double that of the rate of increase in the State's population. The AOR observed that, if continued to 2000, it would imply an annual total of about 4.5 million visits to Yosemite per year, with the attendant overcrowding at Yosemite Valley itself. The AOR report's range of 200,000 to 500,000 visits to Hetch Hetchy was influenced by this assumption.

Whatever factors influenced the unknown authors of the 1988 AOR report, their forecasts of visitation to Hetch Hetchy - adopted uncritically by the current study's author - are not borne out by recent information about the actual preferences of Californians for outdoor recreation. In fact, the upward trend in recreational visitation to Yosemite peaked in 1996, thereafter beginning a steady decline to 3.3 million in 2004, virtually the same number of visitors as in 1987, despite an increase in California's population during the 18 intervening years of over 9 million people. (See Chart 1)



Source: National Park Service Visitation Database Reports, Public Use Statistics Office, http://www2.nature.nps.gov/stats *(excludes "drive throughs")*

The decline in visitation to Yosemite is not an isolated case. Visitation to the other National Park Service (NPS) sites in California that provide the closest substitutes to Yosemite is shown on Chart 2.

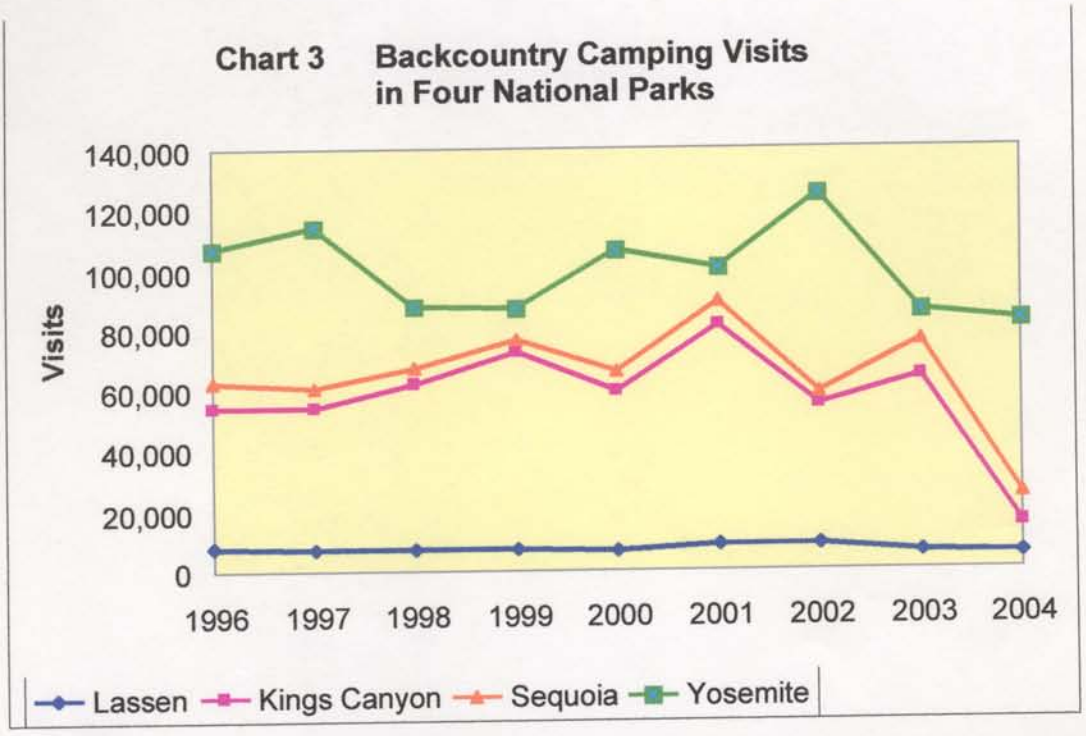


Source: National Park Service Visitation Database Reports, Public Use Statistics Office

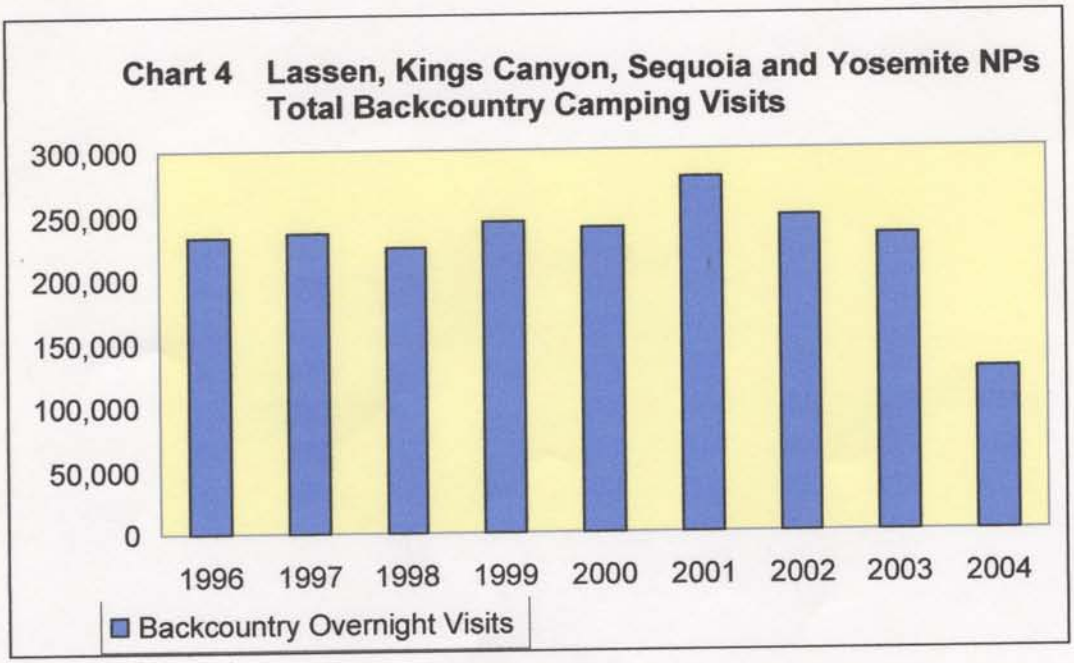
Total visitation at Lassen and Sequoia has remained relatively stable over the past 25 years, while Kings Canyon shows a dramatic decline since the early 1990s, before the decline at Yosemite began. Against the backdrop of a 54% increase in California's population over the last 25 years, visitation at these backcountry parks reflects either fewer visits per capita for users or simply fewer users.

To further illustrate changes in Californians' demand for less-developed recreation, Chart 3 shows the backcountry camping data for the four NPS sites since 1996, a subset of total visitation that tabulates those who actually camp overnight within the parks. Yosemite backcountry camping has hovered around 100,000 visits annually, but dipped in recent years.

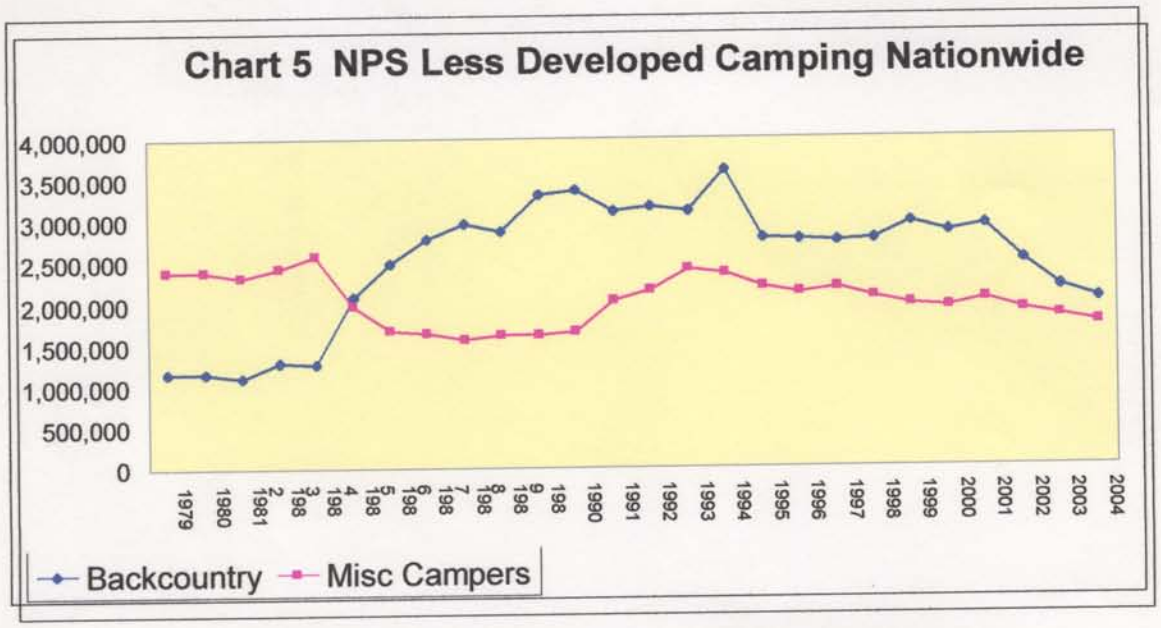
Dramatic declines in backcountry camping occurred at both Kings Canyon and Sequoia in 2004. Backcountry camping at Lassen has been steady but low over the last decade. (Chart 4)



Source: National Park Service Visitation Database Reports, Public Use Statistics Office



Source: National Park Service Visitation Database Reports, Public Use Statistics Office
This flat, or downward, trend is not limited solely to national parks in California. The National Park Service publishes an annual abstract each year that provides data on overnight visitors to each unit, and then divides overnight visitation into several categories such as "concessionaire campground," "NPS campground," and "backcountry." Those who camp in the backcountry provide a proxy estimate of "wilderness" visitation trends. Demand for less-developed camping has fallen at national parks more sharply than general recreational camping, which is also down, as shown on Chart 5. The trend has been down for a decade, having little to do with short-term disruptions after the events of September 11, 2001.



Source: NPS, Visitation Database Reports, Public Use Statistics Office.

Some reasons for these trends are apparent in two recent surveys. Every five years the California Department of Parks and Recreation conducts a statewide survey of participation in recreation activities and public opinion and attitudes about State outdoor recreational facilities. The 2002 survey, published in December 2003, provides substantial insight about the recent trends in, and future needs for, recreational facilities in California. Some key findings:

- Californians most enjoy visiting developed, nature-oriented parks and recreation areas.

- Highly developed parks and recreation areas in or near urban areas are used by the largest percentage (93%) of Californians.
- Most favor private concessions providing services and ready-to-eat food and beverages.
- A trend over the last three surveys toward developed and highly developed areas, and away from natural and undeveloped areas, is evident in Table 1.

Table 1 Types of Outdoor Areas Californians Most Enjoy Visiting

	1992	1997	2002
Developed Nature-oriented Parks/Rec Areas	26%	30%	35%
Highly Developed Parks/Rec Areas	14%	10%	20%
Natural and Undeveloped areas	42%	39%	30%

Source: California Department of Parks and Recreation, POAOR 2002, Table 4

This trend in California recreational preferences is consistent with nationwide patterns. Recent Roper ASW surveys of recreation reveal that beginning in the early 1990s, a long-standing trend of increasing outdoor recreation participation reversed. In the 2003 survey, only 6 of 27 tracked activities showed an increase in participation, while 21 showed a decline, including backpacking and wilderness camping, activities that matter when attempting to estimate the value of Hetch Hetchy restoration.

The Roper study also reveals interesting demographic correlations between recreational participation and income levels and environmental attitudes. Visitation to National Park Service and U.S. Forest Service parks by African Americans, Hispanics and people earning less than $30,000 annually is down, whereas visitation by environmental activists and supporters and people earning more than $75,000 is up.

The benefit values projected for use of a restored Valley floor in the study prepared for Environmental Defense are based on the ad hoc estimates of visitation contained in the 1988 AOR report. Those estimates reflect assumed preferences at the time, which are inconsistent with outdoor recreation trends nationwide, and in California, as of 2005.

B. The Study's Reliance on Transferred Values from "Meta-Analysis" is Problematic.

The study derives an estimate of the monetary value of park usage by multiplying the projected number of visitors (discussed above) by dollar amounts ranging from $17.35/day to $38.72/day per visit. (Table 6, page 37) Those dollar amounts appear to have been derived as averages from studies of other areas conducted between 1979 and 1996 -- ten to 25 years ago.

There is considerable debate within the natural resource economics discipline about the validity of benefit transfers generally. Transferring average dollar values from studies of other sites (so called "meta analysis") employed in the study is, apparently, even more controversial, with the preferred method being the transfer of benefit functions. The author recognizes this in Appendix II, which observes:

> "While it seems rather a blunt instrument to use an average value, particularly given Hetch Hetchy's uniqueness and assumptions about theoretical willingness to pay, an examination of the data used in the Loomis meta-analysis shows that few of the studies examined areas that are natural proxies for Hetch Hetchy."

Exactly. An objective study would have to review each of these studies to know if the resources, substitutes, and market areas are similar to a drained Hetch Hetchy Valley (as well as whether the studies themselves were done well). One would need to account for the possibility that preferences can change over time. Studies from as long ago as 26 years (and none more recent than 10 years ago) cannot be assumed to reflect the changing societal recreation preferences in California noted above. The average of the numerical values from these studies actually provides little assistance in determining the likely "true" use values.

A carefully designed survey would be necessary to estimate values that California outdoor recreators might attach to a restored forest ecosystem on the Valley floor in comparison with, for example, wider access to the existing reservoir for boating, fishing and general recreation. Suggestions for such a study are presented below.

C. The Use Value Estimates Ignore the People Who Currently Visit Hetch Hetchy

The 200,000 to 500,000 visits hypothesized in the study overlook the current level of visits to Hetch Hetchy (40,000 annually according to the AOR report; 25,000 annually per this study; and 50,000 annually in the 2005 "Feasibility Study" recently released by the Restore Hetch Hetchy organization). These visitors' "consumer surplus" is not taken into account in the study's estimate of use value. Either the visitation numbers need to be reduced to reflect only the net increase in visitations, or the consumer surplus enjoyed by current visitors need to be estimated and the monetary value of a restored Hetch Hetchy reduced by this amount.

More importantly, the study's discussion of use value contains a fundamental conceptual flaw. In bold face type, on page 20, the study asserts:

> **"Note that the use of Hetch Hetchy Valley as a reservoir is mutually exclusive with its alternative uses - if any - of the reservoir benefits are to be captured, all of the alternative use benefits must be foregone and vice versa."**

This is wrong, as a moment's reflection will confirm. The existence of the reservoir does preclude access to the floor of the Valley. But that is all that it precludes. The current use of a portion of the Valley as a reservoir does not preclude use of the roads and trails leading from the dam to surrounding wilderness areas for hiking and camping. And the continued utilization of the Valley as a reservoir is not only compatible with its use for boating, it is essential to that use. This point also bears on any survey preferences for alternative uses that the State may eventually commission, discussed below.

D. The Visitation Estimates Must Exclude Foreign Tourists

The estimate of "use-value" contains a significant inconsistency. The study recognizes that a major decision in cost-benefit evaluations of this kind is "whose benefits matter? . . . In other

because "U.S. taxpayers are unlikely to be willing to restore Hetch Hetchy Valley based on the benefits its existence provides to, for example, the Japanese." (p.14) However, despite this recognition of the need for benefits and burdens to be measured over the same populations, the study does not exclude foreign tourists from the AOR estimates of visitation to a restored Hetch Hetchy. At a minimum, the "use-value" estimates need to be further scaled back by 25% to reflect the exclusion of foreign tourists.

2. THE STUDY'S SUGGESTION OF A LARGE "NON USE" VALUE IS AN ADVOCACY TACTIC

The study asserts that people who have never visited Hetch Hetchy, and who never will visit it, may nonetheless enjoy economic benefits from draining Hetch Hetchy Reservoir. This concept is referred to as "non-use" or "existence" value. The study acknowledges that these concepts are "abstract and difficult to measure" (p.5). It also acknowledges that "the uncertainty surrounding non-use or "existence value" for Hetch Hetchy is "too big to fix a reliable number for those benefits." (p.45). the reason for introducing the concept into the discussion, despite these difficulties, is not far to seek:

The study observes:

> "The net present discounted use value alone, although potentially several hundreds of millions of dollars, will probably be too small to off-set the potentially multi-billion dollar cost of reoperating the Hetch Hetchy system and finding alternative power sources for the City of San Francisco." (p.45)

And, similarly:

> ". . . based on existing literature regarding possible restoration costs, use benefits alone will likely be insufficient to overwhelm costs." (p.4-5)

And:

> "If Environmental Defense hopes to argue that the benefits of restoring outweigh the costs, it must have a reliable estimate of the non-use value associated with a restored Hetch Hetchy Valley." (p.41)

The role of non-use benefits is plain to see -- they are necessary to persuade those who will ultimately decide whether to allocate billions of dollars to the "restoration" of Hetch Hetchy Valley that they are not squandering scarce public resources in doing so.

Commendably, the study concedes that the data required to postulate reliable estimates of a restored Hetch Hetchy Valley's non-use value cannot be made using the benefits transfer technique employed in this study." (p.4) And:

> "non-use estimates using the available data are unreliable as none of the data is for sites that are closely comparable to Hetch Hetchy." (p.36)

And:

> ". . . most existing data for non-use value data [sic] is for resources quite different from Hetch Hetchy. It is therefore not very useful in reliably calculating potential non-use benefit." (p.40)

The study's concluding recommendation is that Environmental Defense commission a "contingent valuation survey to assess non-use value" (p.45). The study recognizes that the validity of contingent valuation of non-use benefits is controversial. The problem is clearly identified:

> "The technique used for the estimation of non-use value is contingent valuation, which essentially estimates value by asking people what they would be willing to pay to preserve a given resource. Unfortunately, asking people their willingness to pay does not always elicit an honest response. Outside of laboratory experiments . . . no contingent valuation technique has succeeded in eliciting a <u>verifiably truthful</u> willingness to pay from respondents." (p.22, emphasis in original)

It is evident that so-called "contingent valuation" surveys are more art than science and that the results are readily susceptible to manipulation through the design of the survey itself. Therefore, no such survey conducted by proponents (or opponents for that matter) of the draining of Hetch Hetchy Valley should be relied on by the State of California in deciding a public policy question of this importance.

3. CONSIDERATIONS FOR A STUDY OF BENEFIT VALUES OF MAINTAINING, OR DRAINING, HETCH HETCHY RESERVOIR

A contingent valuation study conducted in accordance with established protocols could cost $1 million or more. In view of the abundant information already collected by the Department of Parks and Recreation about Californians' current recreational preferences, we question whether such a study would be worthwhile. Nonetheless, we offer a few suggestions about how such a study should be conducted.

If the State of California itself were to commission a contingent valuation survey, it should ensure that the survey instrument and associated protocols are carefully designed by disinterested scientists to elicit accurate evaluations of respondents' actual willingness to pay for draining Hetch Hetchy Reservoir. Respondents should be informed about the tradeoffs involved in terms of water and clean power supplies, including the environmental costs of alternative sources of water and power.

Survey participants should be made aware of substitute hiking and camping opportunities in the Sierra. The survey should also elicit values for opening the Reservoir area to expanded hiking, camping, picnicking and even boating opportunities, for comparison with access to the Valley floor. Tradeoffs between backcountry forest recreation on a restored Valley floor should be explicitly contrasted to expanding access to backcountry forest recreation around the existing reservoir, and even water-based recreation (boating and fishing) in the reservoir. The survey design should be aimed at capturing the attitudes of all Californians. In view of the growing importance of the State's Hispanic population, an appropriate percentage of the surveys should be conducted in Spanish.

Finally, the boundary of the area within which benefits are tabulated must coincide with the area which will bear the costs and burdens of providing those benefits. California decision makers are concerned about the welfare of the affected constituency-stakeholders whose water and power supplies (reliability, quality and cost) may be affected by restoring access to Hetch Hetchy Valley. In selecting the entire United States as the market boundary, the study overlooked whose water and power supplies will be at risk. If the costs, including ongoing operational costs of a

modified water system, are to be born by residents in California, cost -benefit equity principles dictate that the appropriate survey boundary for both is northern and central California, or at most, the State of California, not the entire nation.

4. **THE STUDY'S INACCURATE CHARACTERIZATION OF THE RAKER ACT REVEALS A BIAS AGAINST USE OF HETCH HETCHY AS A SOURCE OF WATER SUPPLY FOR BAY AREA COUNTIES**

The discussion of the 1913 Raker Act authorizing the use of federal lands for the Hetch Hetchy Project is inaccurate in several important respects. For example:

- **"San Francisco sought to have its water rights to Hetch Hetchy Valley guaranteed by an act of Congress . . . ."** (p.60)

  San Francisco obtained rights to divert water from Tuolumne River under California law, not the Raker Act. In fact, the legislative history makes clear that Congress understood it was not able to, and was not, granting water rights.

- **"The City viewed its annexation of Hetch Hetchy Valley as essentially 'costless'; particularly since the land was in a National Park it was viewed as 'free'."** (p.61)

  In fact, in 1928, San Francisco conveyed hundreds of acres of land that it owned within Yosemite National Park to the United States, as required by the Raker Act.

- **"From the City's perspective, the Raker Act grants San Francisco full and complete property rights to Hetch Hetchy Valley. To many others, the City is getting a free resource at the taxpayers' expense."** (p.9)

  In fact, the United States did not grant San Francisco ownership to most of the Hetch Hetchy Valley floor -- San Francisco already owned most of it, as it still does. Even if the reservoir were drained, the United States would need to purchase the Valley floor from San Francisco.

Finally, there is the matter of bias. The study disparages the efforts of federal agencies and the Congress to balance the merits of the competing visions of the wisest and most beneficial use of Hetch Hetchy Valley:

> "Rather than a systematic analysis of alternatives . . . the Raker Act was passed as the culmination of years of political campaigning and maneuvering on the part of the City of San Francisco." (p.61)

This characterization overlooks the methodical, three year comparative analysis of Hetch Hetchy and over a dozen other sources conducted by an Advisory Board of the U.S. Army Corps of Engineers appointed by the Secretary of the Interior. It also trivializes the extensive hearings held by the House Committee on Public Lands, and the weeks of heated debate in both the House and Senate during which the very issues that this study addresses were argued.

These examples could be multiplied but the point is a simple one. Neither the author of this report, nor its intended recipient, are objective evaluators. There is no reason they should be - everyone is entitled to advocate forcefully on behalf of the positions they hold and the values they cherish. But no one, least of all the representatives of the State of California now evaluating Environmental Defense's proposal at the direction of the Governor, should accept the assertions in this study at face value.

Thank you for thoughtfully considering these points.

Sincerely,

Arthur R. Jensen
General Manager

cc: Board of Directors, Bay Area Water Supply & Conservation Agency
John T. Andrew, P.E., Chief, Special Planning Projects, Department of Water Resources